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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,839	12/10/2001	Mohammed N. Islam	20434-753 (069204.0177)	5056

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EXAMINER

HUGHES, DEANDRA M

ART UNIT

PAPER NUMBER

3663

DATE MAILED: 06/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/014,839

Applicant(s)

ISLAM, MOHAMMED N.

Examiner

Deandra M Hughes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-86 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-86 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6, 8, 9. 6) ☐ Other:

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DETAILED ACTION

Information Disclosure Statement

1. The MPEP states the following with respect to large information disclosure statements:

*Although a concise explanation of the relevance of information is not required for English language information, applicants are encouraged to provide a concise explanation of why the English-language information is being submitted. Concise explanations (especially those that point out the relevant pages and lines) are helpful to the Office, particularly where documents are lengthy and complex and applicant is aware of a **section that is highly relevant to patentability** or where a large number of documents are submitted and **applicant is aware that one or more is highly relevant to patentability**. -- M.P.E.P. § 609 (emphasis added).*

“Aids to Compliance With Duty of Disclosure,” item 13:

*It is desirable to avoid the submission of long lists of documents if it can be avoided. Eliminate clearly irrelevant information and marginally pertinent cumulative information. If a long list is submitted, **highlight those documents which have been specifically brought to Applicant's attention and/or are known to be of the most significance**. -- M.P.E.P. § 2004 (emphasis added).*

Therefore, it is recommended that if any information that has been cited by Applicant in the Information Disclosure Statement(s) is known to be material to patentability as defined by 37 C.F.R. § 1.56, Applicant should present a concise statement as to the relevance of that/those particular documents.

2. Items Y and Z of paper #8 (submitted July 12, 2002) and Items S and T of paper #6 (submitted March 12, 2002) have not been considered because the PTO-1449 does not contain enough identifying information. In particular, if the Examiner would initial these items, as they are currently listed, the Examiner would be admitting to considering all PCT International Search Reports filed on the disclosed date. For example, initialing

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Item S on paper #6 would be equivalent to admitting consideration of all PCT

International Search Reports filed on 22 January 2002.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 5-24, 26-27, 29, 31-36, 52, 56-63, 66-72, 74-75, 82, and 86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bolshtyansky (US 6,456,426 filed Aug. 7, 2001).

With regard to claims 1, 29, 57, and 67, Bolshtyansky discloses:

- an amplifier (fig. 10) including at least a distributed Raman amplifier fiber (e.g., 30, see also lines 2-3 of abstract) and a discrete amplifier fiber (e.g. the second 30), the amplifier configured to be coupled to at least one signal source;
- at least a first pump source that produces one or more pump beam wavelengths (fig. 3).
- a signal input port (via 16) coupled to the amplifier;
- a signal output port (via 28) coupled to the amplifier, the distributed Raman and discrete amplifier fibers being positioned between the signal input port and the signal output port;

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- a first pump input port (44) coupled to a first end of the distributed Raman amplifier fiber;
- a second input port (second 44) coupled to a second end of the distributed Raman amplifier fiber, the first end being located closer to the signal input port than the second end; and
- a third pump (third 44) input port coupled to the discrete amplifier fiber.

Bolshytansky does not specifically disclose that the at least one signal source produces a plurality of signal wavelengths. However, Clark teaches a signal source that produces a plurality of signal wavelengths (fig. 2, 10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a transmitter that produces a plurality of wavelengths for the advantage of amplifying a WDMed signal.

With regard to claims 2, 6, and 68, the 1st and 2nd pump input ports couple pump energy into the distributed amplifier (46 and 1st and 2nd elements #44).

With regard to claims 3, 69, and 74, the discrete amplifier is a Raman amplifier (see abstract).

With regard to claims 7, 32, 70, and 75 the fibers spans may be between 40-160 km in length (col. 3, line 15).

With regard to claims 8, 33, and 59 pump wavelengths in the range of 1300nm to 1530 nm is disclose (col. 6, line 35).

With regard to claims 9-10, 12-13, and 34-35, the claimed noise figures are disclosed (fig. 8a).

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With regard to claims 11, 24, 27, 52, 63, and 71-72 DCF is disclosed for use as a Raman amplifying fiber (col. 5, lines 1-2).

With regard to claims 14 and 31 any of the amplifiers of 10 can be a discrete Raman amplifier (see abstract).

With regard to claims 15, 56, 58, 62, 82, and 86 a pump shunt is disclosed (e.g. fig. 10, #80).

With regard to claim 16 and 66, the pumps are laser diode pump sources (fig. 3).

With regard to claims 23 and 26, the amplifier includes a transmission fiber (see claim 5 of reference).

With regard to claims 17-22, 36, and 60-61, the claimed lossy members are disclosed (col. 8, line 31 and col. 3, line 65).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 25, 28, 30, 37, 38-51, 53-55, 64-65, 73, 76-81, and 83-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bolshtyansky (US 6,456,426 filed Aug. 7, 2001) in view of Bartolini (US 6,529,315 filed Mar. 4, 2003). Bolshtyansky does not specifically disclose the sign of the dispersion slope of the DCF. However, Bartolini teaches a DCF that has the opposite sign of dispersion slope relative to the cumulative dispersion of the transmission fiber (col. 3, lines 1-15). It would have been obvious to

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one of ordinary skill in the art at the time the invention was made to use DCF of opposite sign to the cumulative dispersion for the advantage of lessening signal degradation due to dispersion.

7. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bolshtyansky (US 6,456,426 filed Aug. 7, 2001) in view of Agrawal (Fiber-Optic Communication Systems, 1997). Bolshtyansky does not disclose the claimed pump input port spacing. However, Agrawal teaches amplifier gain as a function of pump spacing (pg. 382). It would have been obvious to one of ordinary skill in the art at the time the invention was made to space the pump input ports as claimed for the advantage of improving amplifier performance.

Double Patenting

8. Please be aware of possible double patenting issues with the parent applications.

Drawings

9. This application, filed under former 37 CFR 1.60, lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes. When the application is allowed, applicant will be required to submit new formal drawings. In unusual circumstances, the formal drawings from the abandoned parent application may be transferred by the grant of a petition under 37 CFR 1.182.

Conclusion


10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Thomas (US 6,525,869) discloses a distributed Raman amplifier followed by a discrete Raman amplifier.

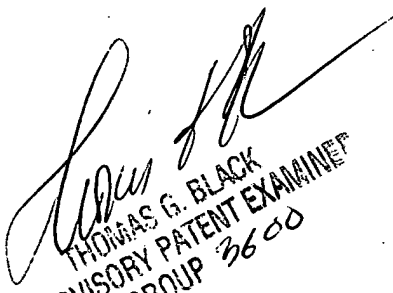
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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M Hughes whose telephone number is 703-306-4175. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Black can be reached on 703-305-9707. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.


DMH
June 6, 2003


THOMAS G. BLACK
SUPERVISORY PATENT EXAMINER
GROUP 3600